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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,522	09/09/2003	Maxime Moreno	SP02-197	4714

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CORNING INCORPORATED
SP-TI-3-1
CORNING, NY 14831

EXAMINER	
LEUNG, JENNIFER A	
ART UNIT	PAPER NUMBER
1764	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/659,522	MORENO ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4 and 11-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4 and 11-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment submitted on November 30, 2006 has been received and carefully considered. Claims 3 and 5-10 are cancelled. Claims 11-15 are newly added. Claims 1, 2, 4 and 11-15 are under consideration.

Specification

2. On page 6, in paragraph [0020], the reference to U.S. Patent Application Serial No. 10/163,215 should be updated to indicate that the application has issued as U.S. Patent No. 6,595,232. Appropriate correction is required.

Claim Objections

3. Claims 1 and 13 are objected to because of the following informalities:

In claim 1, line 8: "a medium" should be changed to --a heat conductive medium--, in order to provide antecedent basis for "the heat conductive medium" stated in each of claims 4, 14 and 15.

In claim 13, line 2: "abo9ut" should be changed to --about--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 2, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knapp (DE 314 1939) in view of Swift et al. (US 4,670,404).

Regarding claims 1 and 2, Knapp (FIG. 1, 2; Abstract; machine translation) discloses an

apparatus comprising: a pressure vessel (i.e., autoclave container **3**) and a reactor (i.e., a reaction container **1**) disposed within the pressure vessel, the pressure vessel constructed and arranged to maintain the pressure vessel and the microreactor at elevated pressure when a chemical operation is performed within the apparatus, wherein the reactor **1** comprises a material (i.e., quartz) selected from the group consisting of nonmetallic elements of groups III, IV and V, ceramics, glasses, glass ceramics, polymers, composite materials, silicon and metals, wherein the apparatus further comprises a medium (i.e., a stand **7** consisting of metal block **16**) communicating with the reactor **1** arranged and positioned so as to be capable of providing thermal exchange between the reactor **1** and the pressure vessel **3** (i.e., at its heatable base **6**).

Knapp, however, is silent as to whether the reactor **1** may comprise a "microreactor".

Swift et al. (FIG. 1; column 5, lines 1-59) teaches a pressure vessel (i.e., containment unit **12**, with sidewall **102** and top **104**) and a micro-scale reactor (i.e., test vessel **10**) disposed within the pressure vessel. It would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the reactor **1** in the apparatus of Knapp as a microreactor, on the basis of suitability for the intended use thereof, because the micro-scale allows for the safe simulation of full-scale chemical processes prior to full-scale implementation, as taught by Swift et al. Furthermore, it has been held that changes in size involve only ordinary skill in the art. *In re Rose*, 220 F.2d 459, 463, 105 USPQ 237, 240 (CCPA 1955).

Regarding claims 14 and 15, the reactor **1** is supported within the inner volume of the pressure vessel **3** by the heat conductive medium **7/16**, such that temperature control of reactor **1** can be achieved by controlling the temperature of pressure vessel **3** rather than by directly controlling the temperature of reactor **1** itself (i.e., by application of heat to the heatable base **6**).

5. Claims 1, 2, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suits (US 2,745,713) in view of Swift et al. (US 4,670,404).

Regarding claim 1, Suits (Figure; column 1, line 40 to column 4, line 65) discloses an apparatus comprising: a pressure vessel (i.e., box **11** with top **12**) and a reactor (i.e., receptacle **27** defining a chamber **26**) disposed within the pressure vessel, the pressure vessel **11/12** constructed and arranged to maintain the pressure vessel and the reactor at elevated pressure when a chemical operation is performed within the apparatus. In addition, the apparatus comprises a medium (i.e., a hydraulic fluid of a liquid metal, fed to chamber **10** via inlet tube **18**) communicating with the reactor **26/27** arranged and positioned to be capable of providing thermal exchange between the reactor **26/27** and the pressure vessel **11/12**.

Suits discloses suitable materials for constructing various portions of the apparatus, including materials selected from the group consisting of nonmetallic elements of groups III, IV and V, ceramics, glasses, glass ceramics, polymers, composite materials, silicon and metals (e.g., carbon steels, ferrous and non-ferrous alloys, and magnesia or silica linings for the pressure vessel **11/12**, see column 1, line 71 to column 2, line 11; also, quartz for lining the inlet tube **18**; see column 2, lines 19-26). Suits, however, does not disclose a specific material for constructing the reactor **26/27** itself. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select one of the claimed materials for constructing the reactor **26/27** in the apparatus of Suits, because said materials are disclosed as being suitable for use under the high pressure and high temperature conditions employed. In addition, Swift et al. evidences the conventionality of constructing a high pressure and high temperature reactor from the claimed materials (i.e., a metal container **119**; FIG. 1).

Suits is further silent as to whether the reactor **26/27** may comprise a "microreactor".

Swift et al. (FIG. 1; column 5, lines 1-59) teaches a pressure vessel (i.e., containment unit **12**, with sidewall **102** and top **104**) and a micro-scale reactor (i.e., test vessel **10**) disposed within the pressure vessel. It would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the reactor **26/27** in the apparatus of Suits as a microreactor, on the basis of suitability for the intended use thereof, because the micro-scale allows for the safe simulation of full-scale chemical processes prior to full-scale implementation, as taught by Swift et al. Furthermore, it has been held that changes in size involve only ordinary skill in the art. *In re Rose*, 220 F.2d 459, 463, 105 USPQ 237, 240 (CCPA 1955).

Regarding claim 2, as best understood, the pressure vessel **11/12** defines an autoclave (i.e., an autoclave is commonly known as a strong, pressurized and heated vessel, often used for conducting laboratory experiments).

Regarding claims 14 and 15, upon the filling of chamber **10** with the heat conductive medium (i.e., the hydraulic fluid), the reactor **26/27** will be inherently supported by the surrounding heat conductive medium. Furthermore, temperature control for reactor **26/27** can be achieved by controlling the temperature of pressure vessel **11/12** rather than by directly controlling the temperature of reactor **26/27** itself, as evidenced by the provision of a jacket **17** through which fluids, such as metals or water, may be circulated (see column 2, lines 7-14).

6. Claims 4 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suits (US 2,745,713) in view of Swift et al. (US 4,670,404), as applied to claim 1 above, and further in view of Gorokhovsky (CA 2,326,228).

Suits discloses that the heat conductive medium may comprise a liquid metal, such as

lead, indium, gallium, tin, etc. (see column 3, lines 6-17). Suits, however, is silent as to the heat conductive medium comprising SiC in particulate form, and of the claimed particle sizes.

Gorokhovsky (page 2, line 30 to page 3, line 16) teaches a heat conductive medium comprising a liquid metal, such as lead, indium, gallium, tin, etc. (i.e., metallic component A, when employed above its melting point T_A), and SiC in particulate form (i.e., particulate ceramic component B), wherein the SiC may have an average particle size from 1 μm to 150 μm.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the heat conductive medium as taught by Gorokhovsky for the heat conductive medium in the apparatus of Suits, on the basis of suitability for the intended use thereof, because the heat conductive medium of Gorokhovsky allows for an auto-regulating heat transfer system to be obtained (see page 6, line 20 to page 8, line 2). In addition, it has been held that the substitution of known equivalents (i.e., one know heat conductive medium for another known heat conductive medium) involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Response to Arguments

7. Applicant's arguments with respect to claims 1, 2, 4 and 11-15 have been considered but are moot in view of the new ground(s) of rejection, necessitated by amendment.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung JAL
February 20, 2007

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